DESIGN DOCUMENTATION GUIDELINES

1.0 INTRODUCTION

The design documentation should include:

Components - In terms of purpose, functional allocations, interfaces, data storage and throughput capacity, timing requirements, security and integrity considerations, and diagnostic considerations.

Flow - relationship of components descibed in terms of data flow between components and external interfaces and the control flow between components.

Structure - physical structure of each component is specified

Each requirement described in the Requirement Document should be traceable to the software components. A checklist is provided in Section 3.0 of this document.

2.0 DESIGN/ARCHITECTURAL DOCUMENTATION AND REVIEW GUIDELINES

Software Design

- Process flow
  - Present a (draft) SLDFD and discuss
  - identify any new persistent processes
  - identify any mods to existing persistent processes
  - identify anticipated process control flow (fork/exec, system call,..)
  - if multi-processed, describe how processes communicate

- Database usage
  - list databases read from
  - list databases written to
  - list mods to format of any existing databases
  - list any new databases anticipated being created

- Programming Language usage
  - list all languages envisioned being used

- COTS/freeware sw usage
  - list desire for use of new COTS/freeware packages
  - list desire for change of version of existing COTS/freeware packages

- Service APIs required
  - list any system APIs/CLIs anticipated being used (e.g. textdb, distributeProduct, handleOUP, transferNWR, ...)
  - list any desire for new AWIPS services

- System services utilized or modified
  - NotificationServer
  - TextNotificationServer
  - Informix
    - Database Utilized
    - New or altered tables
    - New triggers requiring system calls
    - anticipated storage impacts
  - Message Handling Server (MHSserver)
  - Decoders (BUFR, Radar, Satellite, MOS, others)
  - DataController
  - CommsRouter
  - Machine-specific dependencies
    - list any restrictions on where new persistent processes need to/should run
- WAN usage
  - describe backward-compatibility of any changes involving the WAN

<u>Operability (User Interface)</u>

- describe any anticipated User Interface components
    - present either running prototypes, screen dumps, drawn pictures, or discuss
- describe how the function is anticipated being invoked by the user
  - describe anticipated use of the mouse/keyboard
  - *describe anticipated use of the item in the field (ie. Svr weather usage only, etc...*

<u>Installation</u>

- list any anticipated changes to national metadata files
- list any anticipated changes to site-modifiable metadata files
- list any anticipated changes to runtime setup files (.rhosts,.environs,...)
- identify any cron usage anticipated
  - list how often run and what times of day
- list any new runtime disk partitioning/directories anticipated being created
- list any new runtime metadata files being used
  - are any anticipated being site-configurable?
- list any core runtime system services changes anticipated
  - /etc/services, Informix parameters, OS parameters, patches
- list any new COTS/freeware runtime packages anticipated

Performance

- assess usage of
  - CPU, NFS, Informix (triggers or otherwise), memory
- describe any extra load being put on shared services such as
  - notificationServer, textNotificationServer, oninit, AsyncProductScheduler, NWWSScheduler, MHSserver...)
- list anticipated issues with algorithmic performance (i.e for heavy number-crunching functions)
- assess disk I/O (read/writes) usage
- describe anticipated use of remote shell, rcp, or other such system calls
- describe anticipated operational use of the function (i.e. heavy usage expected during severe weather,...)

Hardware/Resource Usage Design

- identify any new hardware or mods to existing hardware required by this item
- identify any new disk space needs anticipated
- identify any anticipated use of Omniback/tape drive?
- identify any anticipated use of the WAN
  - how often, how much data, what times of day
- identify any anticipated use of the SBN
  - how often, how much data, what times of day
- identify potential problematic use of special hardware resources
  - such as async mux ports, LDAD terminal server ports, modems,...

External Interfaces

- identify any external interfaces this item will need to contend with
  - does a sufficient formal ICD exist?
  - assign action items to substantiate the ICD, if necessary

General Design Assessment

- prototyping opportunities
- opportunities to generalize a function to a system (or local app) service

Configuration Management

- Any new PVCS items

Assignment of Responsible Individuals

- Development
- Installation - coordination of installation information and issues
  - collecting COTs/Freeware
  - cron usage map
  - system wide install files
  - localization changes
  - site configurable files
  - national data sets file changes
- Testing
  - Test Plan
  - Test Procedures

Documentation Assessment (Operational)

Testing Assessment

- Special development test needs
  - describe any special setup required for development level testing (that could be problematic)
    - special test data sets not readily available
    - special test equipment
    - access to field personnel
- System Test
  - describe any special setup required for system testing
    - special test data sets not readily available
    - special test equipment required
    - access to field personnel
- Alpha Test
  - discussion of potential alpha testing for this item

Schedule

- identify need for further design reviews
- Supplemental milestones (e.g., code, walkthroughs, testing)